

III. REMARKS

1. Claims 1-18 remain in the application. Claims 1, 3, and 11 have been amended. Support for the amendments may be found in the specification, for example on page 15, lines 27-31, page 22, lines 29-35, page 29, lines 6-9 and page 40 lines 4-13. Claims 19 and 20 are new.

2. Applicants respectfully maintain that claims 1-18 are patentable over the combination of Friedrich et al. (EP 0 360 135, "Friedrich") in view of the admitted prior art.

The combination of Friedrich and the admitted prior art fails to disclose or suggest a communication device with one processor to run at least two operating systems simultaneously, where the at least two operating systems include:

a first operating system for mobile station functions comprising a first group of threads, the mobile station functions including operations for communicating with another device, and

a second operating system for data processing functions comprising a second group of threads, the data processing functions comprising operations for processing data internally in the communication device the first and second operating systems communicating with each other,

as recited by claims 1, 3, and 11.

The combination of Friedrich and the admitted prior art also fails to disclose or suggest a communication device with all of the above features and at least a first user interface and a second user interface, as recited by claims 3 and 11.

As mentioned previously, in section 5 of the present Office Action the Examiner mentions that the combination of Friedrich and the admitted prior art teaches one processor to run two operating systems (page 3 of the present application). However, Applicants submit that the cited combination does not teach one processor to simultaneously run two operating systems which comprise one operating system for mobile station functions and another operating system for data processing functions, i.e., two operating systems for quite a different tasks, and does not teach that the two operating systems communicate with each other.

Page 3, lines 1-19 does not teach a one processor device, but a two processor device with one processor for the phone functions and one processor for data functions, that is, the Nokia 9000 Communicator does not teach a single processor device, but rather two processors, one for each set of functions. Thus, this portion of the present specification does not disclose one processor simultaneously running one operating system for mobile station functions and another operating system for data processing functions. This section also fails to disclose that the two operating systems communicate with each other.

Page 3, lines 21-32 of the present application states:

"Running two operating systems in a single processor is in prior art solutions accomplished by implementing the operating systems by utilizing the features of either operating system. This type of combination has e.g. the problem that when the operating systems have very different types of properties, it is not possible to carry out all the properties of the operating systems that are to be combined."

Therefore, in this example, the second operating system utilizes features of the first operating system (or vice-versa). This is different from what is claimed in the present application.

Page 3, lines 34-38 refer to US 5,278,973 as disclosing that only one operating system may be used at a time and thus not simultaneously and not one operating system for mobile station functions and another operating system for data processing functions. This portion of the specification also fails to disclose that the two operating systems communicate with each other.

Friedrich also fails to disclose using two operating systems simultaneously, i.e., the user cannot, for example, use PDA functions and at the same time receive a fax by means of another operating system. According to Friedrich, the UNIX operating system is active within the time slot $t_0...t_1$, and the user programs U1 and U2 are executed within the time slices reserved for them. At the point of time t_1 , real time interruption occurs, which interrupts the UNIX operating system and the user program U2 and finally activates the NICOS operating system.

The operating program with the time sharing operating system; the real time operating system; and the user programs and real time programs controlled by the operating systems are stored in the mass memory 13. When the system is activated, the time sharing operating system is loaded by means of a loading program stored in the read-only memory 22, said time sharing operating system being in this case a UNIX operating system of the company AT&T. At this point it should be emphasized that other time-sharing operating systems can also be applied. The UNIX operating system

controls the data processor after it has been activated. Thus, it is possible to utilize commands determined in the UNIX operating system for loading the real time operating system or other programs. The real time operating system is loaded as a so-called special file, for which a special loading address is determined. (col. 8, lines 32-50, of Friedrich).

Referring to Figure 2 of Friedrich, When it is discovered at the processing stage 46 that it was the time sharing operating system that was active before the interruption, the system branches to the execution stage 54. At this stage a comparison between the priority $P(z)$ of the current interruption and the program priority $P(z - 1)$ of the interrupted program is conducted.

If it was the real time system that was activated, the system branches to a comparison stage 66, in which the priority $P(z)$ of the current interruption is compared to the priority $P(z - 1)$ of the real time program.

Thus, Friedrich fails to disclose or suggest one processor to simultaneously run two operating systems, and also fails to disclose that the two operating systems communicate with each other.

Section 5 of the present action notes that the claims recite the first operating system "relates to running" mobile station functions and data processing functions. The present invention has been clarified to explicitly recite one operating system for mobile station functions and another operating system for data processing functions

Further, in section 3 of the present action, the Examiner argues that "It would have been obvious to combine the APA's teachings with Friedrich's dual OS operations because the communication device could 'utilize the results of earlier product development ... in a single processor solution' (Page 3) and thus, the integrated system would economize energy, efficiently executing programs for both the mobile station and data processing."

Again, the applicants refer to the actual text on page 3 of the present application:

One example of such a device is Nokia 9000 Communicator, which is a portable device with a relatively small size having both data processing operations and mobile station operations. However, one object of this type of combined device has been to utilize a previously developed product as much as possible, wherein an aim has been to retain, e.g., the software for these different devices compatible in this new device. This has been achieved by providing the data processing portion with a processor of its own and an operating system of its own therein, and likewise, the mobile station embodiments have a processor of their own and an operating system of their own. Thus, it has been possible to utilize the results of earlier product development as efficiently as possible and precipitate the launching of the device.

It can clearly be seen that Nokia 9000 has separate processors for the two different operating systems. That is the reason why it has been possible to utilize the results of earlier product

development. The problem which relates to such two-processor solution is also mentioned on the same paragraph on page 3:

However, separate processors usually spend more capacity than is possible to obtain in a single processor solution, wherein such a portable device needs a more efficient battery, or else its execution time cannot be made as long as is possible by separate devices.

To further emphasize the difference between the combination of Friedrich and the admitted prior art and the present invention, Applicants have amended the independent claims to further describe the simultaneous operating system functions. Applicants respectfully submit that the cited art fails to suggest simultaneous operating systems that function as described in the independent claims.

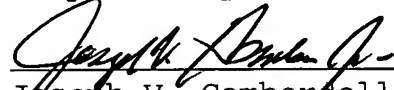
At least for these reasons, Applicants submit that independent claims 1, 3, and 11, and dependent claims 2, 4-10, and 12-18 are patentable over the combination of Friedrich and the admitted prior art.

3. Claims 19 and 20 are new and further describe how the operating systems operate simultaneously. The cited combination of art fails to disclose the features of the present invention.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

The Commissioner is hereby authorized to charge payment for any fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,

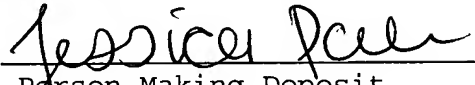

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